

Abstract Submitted  
for the DPP06 Meeting of  
The American Physical Society

**Cause of  $m=0$  mode reconnection in MST**<sup>1</sup> SEUNG CHOI, DARREN CRAIG, FATIMA EBRAHIMI, STEWART PRAGER, University of Wisconsin — We investigate the origin and coupling between different modes, focusing primarily on modes resonant near the edge of the plasma. We directly measure in the edge with probes the term in the MHD equations which represents the driving (or damping) of tearing modes due to the equilibrium magnetic field. We also examine the nonlinear coupling between modes with bi-spectral techniques. The cause for reconnection mode growth is determined experimentally for two cases: the standard RFP sawtooth crash, and  $m=0$  bursts that occur during periods of enhanced confinement. The  $m=0$  mode is damped by the equilibrium fields during the sawtooth crash and driven by the equilibrium fields during the EC burst. This suggests that the sudden reconnection in MST is driven by nonlinear coupling in the standard RFP sawtooth crash and by linear instability in  $m=0$  bursts during enhanced confinement.

<sup>1</sup>Work supported by U.S.D.O.E and N.S.F.

Seung Choi

Date submitted: 14 Jul 2006

Electronic form version 1.4